The Apache Junction Rock & Gem Club, Inc.

SMOKE SIGNALS

Oct 2012

Officers of the Apache Junction Rock & Gem Club, Inc.		
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Trustee:	Brian Fremoyle	480-983-2003 dabusha06@gmail.com
Trustee:	Tom Sundling	402-432-9790 ajroct@gmail.com

The Club meets on the second Thursday of every month October thru April at 7:00 pm at the Carefree Manor RV Park, at the corner of Tepee & Delaware, Apache Junction, AZ

Club Dues - $24 a year per member prorated to first of month of joining. This may be paid at the general meeting or by mail to Ron Ginn, 691 N. Velero St., Chandler, AZ 85225.

In This Issue

Next Meeting – Dec 13, 2012

Field Trips Planned

Dear Club members here are a few things that you requested. The
following are collecting sites and the specimens you can find.

Table Mesa Jasper/calcite
Sheeps Crossing Saganite
7 Springs Onyx/agate/jasper
Burro Creeek/Bagdad Pastelite/agate/
jasper/apache tears
Perkinsville/Jerome Agate/fossils/
Kingman Tavertine(onyx)
Globe Onyx/Serpentine
Diamond Point Crystals/Fossils
Black Canyon Jasper
Rim FR300/123 Chert/Fossils
Roberts Mesa Chert/Fossils
Brenda Jasper
Round Mountain Fire Agate/ Chalcedony

There are a few more sites that I will add in the future. Please consider leading a trip to one of these sites or your favorite site. I am also looking for experienced rockhounds to open your unused rock pile for a local trip.

Minutes of Nov. Mtg.

Apache Junction Rock & Gem Club-
General Meeting Minutes
November 8, 2012
Submitted by Barbara Bayer

The meeting was called to order by the President at 7 pm. She led the Pledge of Allegiance.

I. President's Report- Any volunteers for the new Lapidary Shop, please call the President for a work day. We still need to paint and clean the shop.
II. The minutes of the October 2012 General Meeting were approved as circulated.
III. Treasurer's Report- The expenses mostly for the new shop were $11,609.17; deposits were $11,930.66; one CD for $8,532.26 was cashed for new shop expenses; $400 was transferred from general funds for new shop expenses. The Lapidary checking account is $1302.68 and Lapidary savings is $58.54. The General checking account is $627.87 and General savings of $121.31 with deposits of $125.00 and expenses of $44.00. The Show checking account is $6,678.95 and Show

savings is $7,022.63. We have two CDs for $6919.69 and $10,271.75.
IV. Mr. Ginn (Membership) reports that we have 228 members in the club.
V. Ms. Kirmel (Hospitality) reports the Christmas dinner will be held at 6 pm on December 6, 2012 at the Carefree Manor Clubhouse. Please bring a side dish or desert, plus your own silverware and plates. Tobia Eaks, Natalie Kirmel, and Barbara Bayer will each prepare a turkey, plus Judy Fagen will prepare a ham.
VI. Mr. Ginn (Newsletter) reported that most newsletters are circulated via email. The newsletter will also be available in paper copy at the general meetings and at the Lapidary shop for those without email addresses.
VII. Trustee's Report: Worked completed at the shop includes: dry wall hung and painted, electric installed, water connected, water heater installed, and yard cleaned. The Shop still needs a 20 ft. work bench top and a 4 ft. work bench top. Once the work bench tops are installed and painted, the grinders, saws, and buffers will be set in place. We also must discard items like old tires and the grocery cart. Volunteers are welcome and appreciated.
VIII. Mr. Wright (Field Trips) announced an all day trip to Sheep's Crossing on Nov. 24th. This is a rough road trip so car/truck pooling is encouraged. Please contact De Wright at 480-629-5633.

New Business:
1. Advertisements may be placed in the Newsletter and on the Website. Business card size ads will cost $25 for two months. Members may submit one personal ad (business card size) free per year. Contact Mr. Ginn (480-294-0731) or Mr. Iverson (480-325-2705).
2. Mr. Perkins reported that the Old Pueblo Lapidary Club in Tucson holds an annual all day auction as a fund raiser. The items as slabs, rocks, equipment are all donated. The club raises between $6000 to $8000 in one day. He recommends such an activity as a fund raiser for our club.
3. Mr. Fermoyle (Trustee) requests good quality slabs, rocks, findings, and cabochons be donated for the silent auction. He has been sorting many donated specimens.
4. The President reported that the Apache Junction City Clerk states we can not hold a garage sale at the new Lapidary Shop.
5. Pam Carter was introduced. She has donated Mr. Scott Steven's collections to the club.
6. It was suggested that we have classes once the new Lapidary shop has been opened. Topics for classes included making cabochons, silversmith, and wire wrapping. Mr. Wright stated a video is now available for making cabochons.

Announcement: The next membership sale will be at Ernie's location in East Apache Junction on State Route 88 for November 17th and 18th.

The 50:50 raffle for $39.00 winner was Shirley Nessin. The door prizes were distributed.
The meeting was adjourned at 8 pm. The final activity was the silent auction.

Article of the Month

Magnetism and Magnetite, Lodestones and Lightning

by Andrew A. Sicree

the iron tip of his shepherd's staff stuck to the black stone. Unlike many such stories, this legend is quite plausible: being a natural magnet, the lodestone will attract iron metal or deflect the needle of a compass. Like the ancient Greeks, contemporary youngsters are fascinated by a magnet's ability to project an invisible force and almost every young mineral collector has a piece of lodestone in her or his collection.

A little bit of etymology

The town or district of Magnesia is located in Thessaly in central Greece (was the location named for the shepherd or the shepherd named for the location?). Historically, this district produced black stones that attracted iron. The classical name *lithos Magnetis* or "stone of Magnesia" is the source of the modern term *magnet* from which we derive the mineral name *magnetite*.

Lodestone, on the other hand, is derived from the Anglo-Saxon *lād*, meaning "way" or "journey." Thus, a *loadstone* or *lodestone* was a stone that "showed the way." This was because an elongated lodestone could be suspended from a string and used as a navigational tool.

Being polarized, a lodestone would always point in the same direction – a helpful characteristic when one is sailing a ship on the sea beyond the sight of land. In Dutch, the navigational use of the

lodestone was expressed in the word *zeilsteen*, from *zeilen*, "to sail," and *steen*, "stone." Thus a lodestone or *zeilsteen* was a "sailing stone."

A little bit of science

A magnet is any object that possesses an external magnetic field. In common usage we use the term "magnetism" to describe phenomena such as a steel bar magnet sticking to the door of a refrigerator, or a piece of lodestone which, although too weak to hold its itself to the refrigerator door, deflects the needle of a compass. To scientists, these are two different, but related, displays of two important types of magnetic phenomena called *ferromagnetism* and *ferrimagnetism*.

All magnets are magnetic because of the motion of the electrons surrounding their atoms (moving electric charges generate magnetic fields). In a *ferromagnetic* material (such as iron metal, nickel, cobalt and most steels), the atomic magnetic fields align themselves parallel to an externally applied magnetic field, and produce a strong magnetic field of their own. In a *ferrimagnetic* material, the atomic magnetic fields align themselves both parallel and "anti-parallel" (parallel but with a polarity opposite to that of the parallel components) to the applied fields. The parallel components are stronger than the anti-parallel and thus the material is magnetic. Magnetite or lodestone is *ferrimagnetic*. (Note that older mineralogy texts sometimes called magnetite a *ferromagnet*; in the 1940's Louis Néel provided the theory to explain that magnetite was really a *ferrimagnet*. Yes, I know that there is only one letter difference between the two, but that one-letter difference represents a real difference in magnetic characteristics.)

Thus, we note that *ferrimagnetism* is a property intrinsic to the material itself. But, if this is so, why aren't all pieces of magnetite lodestones?

In order for a specimen of magnetite to display a strong external magnetic field (i.e., become a lodestone), the magnetic "domains" in the specimen must be aligned to give a net magnetic field. When magnetite first forms, its magnetic domains (you can think of them as many, many small bar magnets, each with a North and a South end, making up the magnetite) are more-or-less randomly oriented, thus the magnetite does not behave like a lodestone (the randomly-oriented bar magnets cancel each other out). If a strong electromagnetic field is applied to the rock, it will cause many of the domains to align themselves in the same direction. This aligned magnetite will be a lodestone.

A stroke of lightning

So, if you want to make magnetite into lodestone, how do you apply a "strong electromagnetic field" to the rock? In Nature, a bolt of lightning does the trick. Lodestones are thought to form when lightning strikes magnetite in the rock. The pulse of lightning realigns most of the magnetic domains in the magnetite. When the North and South ends of most of its magnetic domains are aligned with the same orientation (all the bar magnets are arranged in the same direction), a magnetite specimen will produce an external magnetic field. Thus magnetite is transformed into lodestone. Apparently most, if not all, natural lodestones are produced by lightning strikes.

Evidence in support of this theory comes from the fact that on the ridge-tops and summits of mountains built of rocks containing small amounts of magnetite, one may typically observe strong deflections of one's compass needle. Elsewhere, these same magnetite-containing rocks will not deflect a compass needle. This phenomenon is attributed to the effects of lightning striking the higher ground and converting mountain-top magnetite to lodestone.

Interestingly, you can change a lodestone back into ordinary magnetite if you heat it up. If you heat lodestone above about 575°C (1067°F), the "Curie point" for magnetite, and then cool it back down, it will become ordinary, non-lodestone magnetite.

The magnet test

Magnetite is the most strongly ferrimagnetic mineral and of all ferrimagnetic minerals it will most vigorously respond to a bar or a horseshoe magnet. A magnet thus becomes a useful tool for determining the presence of magnetite. Any small but strong magnet hung on a pivot or suspended from a string will be attracted to rocks containing the mineral.

Some minerals other than magnetite are also affected by a magnet. These include pyrrhotite (Fe_7S_8), greigite (Fe_3S_4), maghemite (γ-Fe_2O_3), goethite (α-FeOOH), feroxyhyte (δ-FeOOH), and jacobsite ($MnFe_2O_3$) – all of which are ferrimagnetic. In these minerals, the effect is considerably weaker than in magnetite and the property is thus harder to detect. Native iron (rare,

but found on Disko Island, Greenland) and iron-nickel metal found in meteorites are also strongly attracted to a magnet.

One good magnet test technique is to crush a suspect mineral into small grains and place them on a smooth sheet of paper. If a strong magnet is brought close to the grains, some will jump onto it. Grains of weakly magnetic minerals may not cling to the magnet, but it may be possible to detect their weak magnetism when they are disturbed and moved slightly when the magnet is passed over them.

Rock Shows

Nov

2-4—BLACK CANYON CITY, ARIZONA: 36th annual show & sale; Braggin Rock & High Desert Helpers; High Desert Park; 19001 Jacie Ln.; Fri. 9-4, Sat. 9-4, Sun. 9-4; free admission; dealers, demonstrators, minerals, gemstones, jewelry, fossils, crystals, tools, equipment, books, lapidary supplies, gold panning, cabbing, beading, wire-wrapping, faceting, stone carving, gem setting, raffle, rock identification; contact Don Ingalls, PO Box 212, Black Canyon City, AZ 85324-0212, (623) 374-0202; e-mail: riverdiva@gmail.com

3—TUCSON, ARIZONA: 11th annual silent auction; Old Pueblo Lapidary Club; clubhouse; 3118 N. Dale; Sat. 9-2; free admission; contact Danny Hamsen, 8160 E. Broadway, Apt. 12, Tucson, AZ 85710, (520) 721-8452; e-mail: drrock2000@gmail.com; Web site: www.lapidaryclub.org

3-4—PHOENIX, ARIZONA: Retail show; Sharon Szymanski and Val Latham; El Zaribah Shriner's Auditorium; 552 N. 40th St.; Sat. 10-5, Sun. 10-4; adults $3, children (under 12) free with adult; dealers, fine and costume jewelry, fossils, minerals, rough slabs, cabachons, crystals, copper, beads, lapidary equipment and supplies, wirewrappers; contact Sharon Szymanski, 1792 E. Laddoos Ave., San Tan Valley, AZ 85140, (480) 215-9101; e-mail: goldcanyon2@yahoo.com

24-25—PHOENIX, ARIZONA: 10-4 both days. Wickenburg Community Center, 160 N Valentine St., Wickenburg,AZ 85390
Beth Myerson myerbd@gmail.com

If you have an Email address, please send an Email to apachejrgc@gmail.com, so that you can receive the newsletter

ADS

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Thank you to our Volunteers for the New Lapidary Shop

Bayer,Dave and Barbara
Budde, Dee
Gadd, Phil
Dimler, Leighton
Denison, Butch
Duggin, Bob
Fermoyle, Brian
Gervais, Jerry
Grzych, Rick
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Montague,Ted and Martha
Pawlowski, Jack
Perkins, Ken
Porrett, Richard
Sellinger, Gary
Stasi, Bill
Stratton, Doc
Strawn, Craig
Sundling, Tom and Connie
Tunnicliff, Katie
Wainaina, Richard
Webber, Dave
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